K1b

Gravity on Earth and Moon

Activity Extension

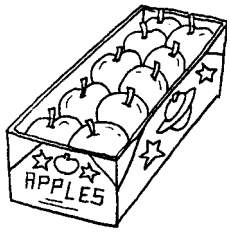
You are going to answer some questions about mass and weight.

Apples on Earth

Remember
On Earth, 1 kg weighs 10 N.
1 kg = 1000 g

An apple has a mass of about 100 g.
On Earth it will weigh about 1 N.

① What is the mass of 10 apples?
② How much do 10 apples weigh?
③ What is the mass of a box of apples that weighs 500 N?



Apples on the Moon

④ If an astronaut took a box of 10 apples to the Moon, how many apples would he have when he got there (assuming he didn't eat any)?

If the number of apples doesn't change, then the mass will stay the same.

⑤ What will be the mass of the apples on the Moon?
⑥ How much will the 10 apples weigh on the Moon?
⑦ If the astronaut eats 5 of the apples, what is the mass of all the apples that are left? Where is the rest of the mass?
⑧ What is the mass of a space buggy that weighs 450 N on the Moon?

Remember
On the Moon, the pull of gravity is about one-sixth that on Earth.
To calculate the weight of an object on the Moon, you divide its weight on Earth by 6.
1 kg weighs about 1.5 N on the Moon.

Sending spacecraft

⑨ A space shuttle has a mass of about 100 000 kg. How much does it weigh on Earth? How much would it weigh if it landed on the Moon?

NASA would like to send a mission to Mars. The heavier something is, the more fuel it takes to launch it. Fuel is very expensive.

⑩ NASA would like to launch the Mars probe from the Moon. Why do you think they want to do this?
Explain your answer.